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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/587,746

07/28/2006

Jun Tominaga

060551

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23850 7590 01/21/2010
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EXAMINER

SELLS, JAMES D

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

01/21/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,746	Applicant(s) TOMINAGA ET AL.	
	Examiner James Sells	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-21 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-21 and 23-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 16-20 and 23-28 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Obeda (US Patent 3,499,808).

Regarding claim 16, Obeda discloses an ultrasonic welding system. As shown in Figs. 1-4, the system comprises an ultrasonic welding structure for bonding a columnar heating target (projection 17) formed with a workpiece (workpiece 16) to a predetermined bonding target (plate 18) by pressing a resonator (ultrasonic horn 14) against the heating target and applying a high frequency vibration from the resonator to the heating target. Figs. 1-4 of Obeda show horn 14 with a concave portion (surface 22) on a bottom surface.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA

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1963)). Therefore the concepts of the resin material, the bonding target includes an insertion hole for inserting the heating target, and the insertion hole includes a notch formed in an inner edge of the insertion hole on a side facing the resonator has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 17, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the notch serves as an acceptance unit that accepts the heating target in a molten state has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 18, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the notch serves as a stress

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relaxing unit that relaxes a stress generated within the heating target due to a contact with the inner edge of the insertion hole has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 19, Obeda discloses an ultrasonic welding system. As shown in Figs. 1-4, the system comprises an ultrasonic welding structure for bonding a columnar heating target (projection 17) formed with a workpiece (workpiece 16) to a predetermined bonding target (plate 18) by pressing a resonator (ultrasonic horn 14) against the heating target and applying a high frequency vibration from the resonator to the heating target. Figs. 1-4 of Obeda show horn 14 with a concave portion (surface 22) on a bottom surface. Obeda also shows a surface (flat output surface 23) of the resonator (horn 22) on which the resonator contacts with the heating target is formed in a substantially flat shape. See Figs. 1-4 and 7 and col. 3, lines 5-35.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resin material and the heating target including a resonator acceptance unit that is formed in a substantially conical shape to protrude toward the resonator has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 20, Obeda discloses an ultrasonic welding system. As shown in Figs. 1-4, the system comprises an ultrasonic welding structure for bonding a columnar heating target (projection 17) formed with a workpiece (workpiece 16) to a predetermined bonding target (plate 18) by pressing a resonator (ultrasonic horn 14) against the heating target and applying a high frequency vibration from the resonator to the heating target, wherein a concave portion (surface 22) is provided on a bottom surface of the resonator, the resonator includes a protruding portion (contact surface 21) that protrudes from a bottom surface of the concave portion of the resonator toward the heating target. In the embodiment shown in Fig. 8, the protruding portion extends beyond the bottom surface of the resonator which is outside the concave portion and is formed in a substantially semispherical or conical shape.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of a columnar heating target formed with a resin material has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 23, Obeda shows the protruding portion on the ultrasonic horn is formed in a rounded or substantially semispherical shape. See Figs. 1-4.

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Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resonator acceptance unit is formed in a substantially conical shape with a diameter large enough to include the protruding portion formed in the substantially semispherical shape has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 24, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resonator acceptance unit is an elongated hole formed along a direction of pressing the resonator has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 25, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of the resonator acceptance unit is a penetrating hole formed along a direction of pressing the resonator to reach a bottom of the heating target has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 26, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of a notch is provided in an upper edge of the resonator acceptance unit has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus

Regarding claim 27, Obeda discloses an ultrasonic welding system. As shown in Figs. 1-4, the system comprises an ultrasonic welding structure for bonding a columnar heating target (projection 17) formed with a workpiece (workpiece 16) to a

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predetermined bonding target (plate 18) by pressing a resonator (ultrasonic horn 14) against the heating target and applying a high frequency vibration from the resonator to the heating target. Figs. 1-4 of Obeda show horn 14 with a concave portion (surface 22) on a bottom surface.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concepts of the columnar heating target formed with a resin material and the heating target includes a large-diameter portion located on a side of a base of the heating target; and a small-diameter portion located on a side of the resonator relative to the large- diameter portion, with a smaller diameter than a diameter of the large-diameter portion have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Regarding claim 28, applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136

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USPQ 458, 459 (CCPA 1963)). Therefore the concepts of the bonding target includes an insertion hole for inserting the heating target, and a boundary between the large-diameter portion and the small-diameter portion of the heating target is arranged downward of an upper surface of the bonding target in a state in which the heating target is inserted into the insertion hole have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

3. Claim 21 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Daly (US Patent 5,902,426).

Regarding claim 21, Daly discloses an ultrasonic welding system. As shown in Figs. 2 and 8-9, Daly shows an ultrasonic welding structure (horn 22) for applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion (surface 38) that protrudes from a bottom of the resonator toward the heating target, and an inclined surface is formed on the resonator (see Fig.2) from the bottom of the resonator to a base of the protruding portion.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of bonding a columnar heating target formed with a resin

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to a predetermined bonding target has been fully considered, but is not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otani et al (JP-2001-171008) in view of Daly (US Patent 5,902,426).

Regarding claim 29, Otani discloses an ultrasonic welding system. As shown in Figs. 6-11, Otani shows an ultrasonic welding structure for bonding a columnar heating target (element 23) to a predetermined bonding target (element 30) by pressing a resonator (ultrasonic horn 50) against the heating target and applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion that protrudes from a bottom of the resonator toward the heating target, and the protruding portion is formed in a substantially semispherical or conical shape (shown in Figs. 6-11).

However, Otani does not disclose an inclined surface formed from the bottom of the resonator in the manner claimed by the applicant. Regarding this difference, the applicant is directed to the reference of Daly.

Daly discloses an ultrasonic welding system. As shown in Figs. 2 and 8-9, Daly shows an ultrasonic welding structure (horn 22) for applying a high frequency vibration from the resonator to the heating target, wherein the resonator includes a protruding portion (surface 38) that protrudes from a bottom of the resonator toward the heating target, and an inclined surface is formed on the resonator (see Fig.2) from the bottom of the resonator to a base of the protruding portion.

It would have been obvious to one having ordinary skill in the art to employ an inclined surface is formed on the resonator from the bottom of the resonator to a base of the protruding portion, as taught by Daly, in the apparatus of Otani in order to provide the predictable result facilitating handling of workpieces by accommodating various shapes and configurations.

Applicant is reminded that “[e]xpressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim.” *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App 1969). Furthermore, “Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Therefore the concept of bonding a columnar heating target formed with a resin and the heating target includes a resonator acceptance unit in a shape of a penetrating hole formed along a direction of pressing the resonator to reach a bottom of the heating target have been fully considered, but are not given patentable weight in so far as it does not affect the structure of the claimed apparatus.

Response to Arguments

6. Applicant's arguments with respect to claims 16-20 and 23-28 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 21 and 29, applicant argues piston 22 of Daly cannot be considered an "ultrasonic resonator". The examiner does not agree. At col. 3, lines 10-13, Daly discloses employing an ultrasonic tool to bond disc 14 to shaft 12. At col. 4, lines 22-23, Daly discloses employing ultrasonic energy to carry out the heating process. In claim 12, Daly discloses heating the disc with ultrasonic energy. Based on these disclosures of Daly, the examiner believes it is proper to consider piston 22 of Daly an "ultrasonic resonator" or horn.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Telephone/Fax

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Sells whose telephone number is (571) 272-1237. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phil Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James Sells/

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Primary Examiner, Art Unit 1791